

Modified Permit Fact Sheet

General Information

Permit Number:	WI-0041904-08-0 *Modification items are highlighted and go into effect December 01, 2019
Permittee Name:	Sartori Company-West Main Building
Address:	PO Box 258
City/State/Zip:	Plymouth WI 53073-1602
Discharge Location:	Via municipal storm sewer at the facility located at 12 West Main Street, Plymouth and approx. 700 feet north of the Mullet River. Outfall located at 43.74724° N, 87.98132° W.
Receiving Water:	Mullet River (Mullet River Watershed, Sheboygan River Basin) in Sheboygan County
StreamFlow (Q _{7,10}):	6 cfs
Stream Classification:	Warm Water Sport Fishery

Description of Modification

This permit was modified November of 2019 to replace the phosphorus schedule included in permit reissuance #004194-08-0 with the original compliance schedule included in permit reissuance #004194-07-0. The schedule had been amended with permit reissuance #004194-08-0 to bring the facility into compliance with final effluent limits by January 01, 2020. It was believed that an upgrade to the facility's cooling system would bring the facility into compliance by that date, however, the upgrade did not work as intended. The original compliance date of April 1, 2023 has been reinstated in this modification to allow the facility to pursue other options to come into compliance with phosphorus limits.

Facility Description

Sartori Cheese receives raw milk from local dairy farms and produces Italian cheeses and co-products of cream and whey concentrate at its 12 West Main facility. Whey from the cheese making process is piped through a whey cooling plate and then through a reverse osmosis (RO) system that removes water from the whey. The water is then processed through a polisher. Some polished water is used for whey plant clean in place (CIP) processes. CIP water and cheese plant sanitation water is discharged to the Plymouth Utilities wastewater treatment plant. Polished water not used for CIP is discharged with Non-Contact Cooling Water (NCCW). Sartori discharges approximately 0.093 MGD of NCCW (sourced from Plymouth Utilities) and 0.037 MGD of RO Polisher Water, as well as sump pump water from elevator pits, to a municipal storm sewer approximately 700 feet north of the Mullet River. As of August 2019, the facility's NCCW will be replaced with an ammonia compressor cooling recirculation loop system and NCCW will no longer be discharged to the Mullet river. Concentrated whey and whey cream is sold off or land applied on WDNR approved sites if there are no buyers. High strength salty whey is hauled to the Sheboygan WWTP. Sanitary wastewater, Boiler Blowdown, and Water Softener Regeneration backwash is discharged to the Plymouth WWTP via the sanitary sewer. No additives are used at Sartori.

The Department has found the permittee to be in substantial compliance with the current permit.

Sample Point Designation

Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)
001	0.133 MGD (Jan -Dec, 2018)	EFFLUENT: Noncontact cooling water (excluding boiler blowdown and bleed off), reverse osmosis polisher water and uncontaminated elevator pit water. Flow measurements shall be taken with a flow meter located in the cream compressor room. Effluent samples shall be collected from the manhole on the east side of the building, at the combined flow sampling station, with a portable 24-hr flow proportional composite sampler prior to discharge to the Mullet River.
002	No landspreading occurred during the previous permit term.	Landspreading of salty whey, process wastewater, concentrated whey not sold as product, and off-spec whey product or milk on sites approved by the Department of Natural Resources, either directly to approved sites or via manure storage structures. A representative sample shall be collected from the hauling vehicle for each waste type that is landspread during the quarter and the test results shall be recorded in the daily log.

1 Surface Water - Proposed Monitoring and Limitations

1.1 Sample Point Number: 001- EFFLUENT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Daily Max	20 mg/L	Monthly	24-Hr Flow Prop Comp	
BOD5, Total	Monthly Avg	10 mg/L	Monthly	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	Monthly	24-Hr Flow Prop Comp	
pH Field	Daily Max	9.0 su	Monthly	Grab	
pH Field	Daily Min	6.0 su	Monthly	Grab	
Chlorine, Total Residual	Daily Max	38 ug/L	Monthly	Grab	Limit goes into effect January 01, 2022. See permit section 1.2.1.1 and schedule 3.1.
Chlorine, Total Residual	Monthly Avg	38 ug/L	Monthly	Grab	Limit goes into effect January 01, 2022. See permit section 1.2.1.1 and schedule 3.1.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Phosphorus, Total	Monthly Avg	0.8 mg/L	Monthly	24-Hr Flow Prop Comp	Interim limit in effect through March 31, 2023. See permit phosphorus sections and schedule section 3.2.
Phosphorus, Total	Monthly Avg	0.225 mg/L	Monthly	24-Hr Flow Prop Comp	Final limit goes into effect April 01, 2023. See permit phosphorus sections and schedule section 3.2.
Phosphorus, Total	6-Month Avg	0.075 mg/L	Monthly	24-Hr Flow Prop Comp	Final limit goes into effect April 01, 2023. See permit phosphorus sections and schedule section 3.2.
Phosphorus, Total	6-Month Avg	0.094 lbs/day	Monthly	Calculated	Final limit goes into effect April 01, 2023. See permit phosphorus sections and schedule section 3.2.
Temperature Maximum		deg F	Monthly	Continuous	Monitoring only. See permit section 1.2.1.2.
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	Two WET tests shall occur in rotating quarters during the permit period. See permit section 1.2.1.6.

1.1.1 Changes from Previous Permit

No changes have been made to Flow, BOD5, and Total Suspended Solids monitoring requirements and limits since the previous permit.

The following changes have been made for the permitted term:

pH- A daily max pH limit of 9.0 s.u. and a minimum pH limit of 6.0 s.u. have been added to the reissued permit.

Residual Chlorine- Daily maximum and monthly average chlorine limits of 38 ug/L have been added to the reissued permit. These limits go into effect January 01, 2022. Chlorine monitoring shall begin upon permit reissuance.

Total Phosphorus- A monthly average interim phosphorus limit of 0.8 mg/L has been added to this permit. Compliance date of final effluent limits has been set at April 1, 2023.

Temperature Maximum- Temperature monitoring has been added, however, no limit has been applied at this time. Temperature monitoring is only required once a month upon permit reissuance, unless otherwise requested by the department. Sample type is listed in monitoring requirements and limitation table as “continuous”. The facility may also monitor temperature utilizing a grab sample method as outlined in Chapter 2 of the department’s *Guidance for Implementation of Wisconsin’s Thermal Water Quality Standards*, however, the facility is asked to utilize the same method for the entirety of the permit term so temperature data is collected in a consistent manner and is comparable through the whole term.

Whole Effluent Toxicity (WET)- Chronic WET requirements have been removed for this permit term. Two acute WET tests are required during this permit term.

1.1.2 Explanation of Limits and Monitoring Requirements

Refer to the WQBEL memo for the detailed calculations, prepared by the Water Quality Bureau dated April 04, 2019, used for this reissuance.

Categorical Limits

- **BOD₅**-Water quality based effluent limits for BOD₅ are typically derived using the 26-lb method previously developed through numerous water quality studies in Wisconsin rivers and streams. Utilizing the 26-lb method results in BOD₅ limits greater than current effluent limits in the permit. Therefore, current BOD₅ effluent limits are believed to be protective of water quality. Categorical limits based on production are not needed because process wastewater is either land applied or sent to the sanitary sewer. The facility is currently meeting established BOD₅ effluent limits, so to comply with antibacksliding rules established in ch. NR 207.17, Wis Adm. Code, the limits established in the previous permit term shall remain the same for the reissued permit.
- **Total Suspended Solids-** Monitoring for total suspended solids has been carried over from the previous permit term. Narrative criteria for TSS are outlined in s. NR 102.04(1)(a), Wis. Adm. Code. Water quality based effluent limits are generally established in relation to applicable water quality based BOD₅ limits, although there is discretion in the establishment of TSS limits based on the nature of the discharge. Based on effluent monitoring data outlined in the WQBEL memo it is believed that this discharge is unlikely to contribute to degradation of the receiving waters due to TSS or to create objectional deposits on the stream shore or stream bed. Therefore, no effluent limits for TSS are recommended. Effluent TSS will be controlled through the operation of RO system. If operation or treatment efficacy changes, the need for TSS monitoring or limits should be re-evaluated.

Water Quality Based Limits and WET Requirements

- **Total Residual Chlorine-** Limits have been added to comply with applicable limits and standards in ch. NR 240 and s. NR 102.04(4)(c), Wis. Adm. Code. In accordance with the federal regulation 40 CFR 122.45(d), limits in this permit are to be expressed as daily maximum and monthly average limits whenever practicable. Once 11 or more representative results for total chlorine have been provided to the Department, the permittee may request that the Department make a determination of the need for a limit under section NR 106.05, Wisconsin Administrative Code.
- **Total Phosphorus-** Phosphorus requirements are based on the Phosphorus Rules that became effective December 1, 2010 as detailed in chapters NR 102 Water Quality Standards and NR 217 Effluent Standards and Limitations for Phosphorus. Chapter NR 217 of the Wis. Adm. Code addresses point source dischargers of phosphorus to surface waters.

For the reasons explained in the April 30, 2012 paper entitled 'Justification for Use of Monthly, Growing Season and Annual Average Periods for Expression of WPDES Permit Limits for Phosphorus Discharges in Wisconsin', WDNR has determined that it is impracticable to express the phosphorus WQBEL for the permittee as a maximum daily, weekly or monthly values. The final effluent limit for phosphorus is expressed as a six-month average. It is also expressed as a monthly average equal to three times the derived WQBEL. This final effluent limit was derived from and complies with the applicable water quality criterion. Please see the phosphorus compliance schedule included in the Schedules section.

- **Temperature Maximum-** Temperature monitoring was dropped during the previous permit term, but added back for the reissued permit. Requirements for Temperature are included in chs. NR 102 (Subchapter II-Water Quality Standards for Temperature) and NR 106 (Subchapter V Effluent Limitations for Temperature) of the Wisconsin Administrative Code. Thermal discharges must meet the Public Health criterion of 120 degrees F and the Fish & Aquatic Life criteria which are established to protect aquatic communities from lethal and sub-lethal thermal effects. No additional temperature limits have been included in the reissued permit.

- **Whole effluent toxicity (WET)**- Testing requirements and limits (if applicable) are determined in accordance with ss. NR 106.08 and NR 106.09 Wis. Adm. Code, as revised August 2016. (See the current version of the Whole Effluent Toxicity Program Guidance Document and checklist and WET information, guidance and test methods at <http://dnr.wi.gov/topic/wastewater/wet.html>). Acute WET tests are scheduled in the following rotating quarters: October 01, 2021- December 31, 2021; April 01, 2023- June 20, 2023.

2 Land Application - Sludge/By-Product Solids

2.1 Sample Point Number: 002- Landspread Liquid Waste

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids, Total		% Comp	Quarterly	Grab	
Chloride		mg/L	Quarterly	Grab	
Nitrogen, Total Kjeldahl		mg/L	Quarterly	Grab	
Nitrogen, Organic Total		mg/L	Quarterly	Grab	
Nitrogen, Ammonia (NH ₃ -N) Total		mg/L	Quarterly	Grab	
Phosphorus, Total		mg/L	Quarterly	Grab	
Potassium, Total Recoverable		mg/L	Quarterly	Grab	

2.1.1 Changes from Previous Permit:

No changes from previous permit.

2.1.2 Explanation of Limits and Monitoring Requirements

Monitoring requirements for the land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code. Monitoring of land applied liquid sludge will only be required under this permit during quarters when land application occurs.

3 Schedules

3.1 Water Quality Based Effluent Limits (WQBELS) for Total Residual Chlorine

The permittee shall comply with the WQBELS for Chlorine as specified. No Later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification requirement.

Required Action	Due Date
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<p>Report on Effluent Discharge: Submit a report on effluent total residual chlorine with conclusions regarding compliance.</p> <p>When 11 or more representative results for total residual chlorine have been provided to the Department, the permittee may request that the Department make a determination of the need for a limit under section NR 106.05, Wis. Adm. Code. If the Department determines that effluent limitations are unnecessary based on the procedures in NR 106.05, the Department shall notify the permittee that the limitations will not become effective, pursuant to NR106.04(4). The monitoring requirements for total residual chlorine may be reduced and the compliance schedule shall be discontinued. A permit modification is required to implement these changes.</p> <p>Note: Refer to the Surface Water section 1.2.1.1 regarding “Potential Removal of Effluent Limitation(s)”</p>	06/30/2020
<p>Action Plan: Submit an action plan for complying with all applicable effluent limitations. If construction is required, include plans and specifications with the submittal.</p>	12/31/2020
<p>Initiate Actions: Initiate actions identified in the plan.</p>	06/30/2021
<p>Achieve Compliance: The permittee shall complete all identified actions in the plan and achieve compliance with the final chlorine WQBELs.</p>	01/01/2022

3.1.1 Explanation of Schedule

This compliance schedule provides the permittee until January 1, 2022 to comply with the daily maximum and monthly average total residual chloride limits of 38 ug/L. It is assumed the facility will be able to meet this limit once NCCW derived from chlorinated city water is no longer discharged via outfall 001, thus an option to request removal of this limit once 11 or more representative results for total residual chlorine have been provided to the Department has been included. Removal of NCCW from the discharge of outfall 001 is projected to be completed by August of 2019.

A two and a half-year schedule to achieve compliance with chlorine effluent limits has been granted to allow the facility time to submit data and request removal of the limit if the limit is no longer needed after facility changes take place, or alternatively to explore alternative methods of compliance if cooling water changes taking place in the facility do not result in compliance with new chlorine limits. If the facility determines in their report on effluent discharge that they will be able to come into compliance with effluent limits without further actions, but still need time after the cooling system conversion takes place to collect all 11 representative samples, the facility shall still submit a report on effluent discharge on June 06, 2020, with the data they have to date and intentions moving forward, but may wait until they have all 11 representative results before submitting a request for removal of the limit.

3.2 Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus

Required Action	Due Date
<p>Final Plans and Specifications: Unless the permit has been modified, revoked and reissued, or reissued to include Adaptive Management or Water Quality Trading measures or to include a revised schedule based on factors in s. NR 217.17, Wis. Adm. Code, the permittee shall submit final construction plans to the Department for approval pursuant to s. 281.41, Stats., specifying treatment plant upgrades that must be constructed to achieve compliance with final phosphorus WQBELs, and a schedule for completing construction of the upgrades by the complete construction date specified below. (Note: Permit modification, revocation and reissuance, and reissuance are subject to s. 283.53(2), Stats.)</p> <p>Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section</p>	06/01/2020

of this permit.	
Treatment Plant Upgrade to Meet WQBELs: The permittee shall initiate construction of the upgrades. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41, Stats. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	09/01/2020
Construction Upgrade Progress Report #1: The permittee shall submit a progress report on construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	07/01/2021
Construction Upgrade Progress Report #2: The permittee shall submit a progress report on construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	01/01/2022
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface	01/01/2023
Achieve Compliance: The permittee shall achieve compliance with final phosphorus WQBELs. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	04/01/2023

3.2.1 Explanation of Schedule

This schedule is a continuation of the “WQBELs for Total Phosphorus” schedule included in the previous permit (reissuance 0041904-07-0). This schedule brings the facility into compliance with the final effluent limits by April 01, 2023.

3.3 Land Application Management Plan

A management plan is required for the land application system.

Required Action	Due Date
Land Application Management Plan: Submit an update to the management plan to optimize the land application system performance and demonstrate compliance with Wisconsin Administrative Code NR 214 90 days prior to the commencement of land application activities.	

3.3.1 Explanation of Schedule

This schedule requires the submittal of an updated land application management plan for approval by the department prior to the commencement of land application activities. Modifications may be made to the Land Application section of this permit depending on the nature of plan updates.

Attachments:

Substantial Compliance Determination, dated December 04, 2018, prepared by Curt Nickels, Wastewater Engineer.

Water Quality Based Effluent Limits, dated April 04, 2019, prepared by Shaun Shields, Wastewater Engineer.

Proposed Expiration Date:

May 31, 2024

Justification Of Any Waivers From Permit Application Requirements

No waivers were given from permit application requirements.

Prepared By:

Amanda Perdsock Wastewater Specialist

Date: May 28, 2019